

# QUANTA



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**Volume 22 ISSUE 9/10**  
**Oct/Nov 2005**

# Information on The Group

Membership of QUANTA, the independent QL user group, is by annual subscription. The Membership secretary can supply full details. Copies of the group's constitution & annual accounts are available from the Secretary. There is an extensive software library. There are active national and international subgroups. Details are given on the Welcome Booklet Disk and in this magazine.

## Quanta Committee - 2005/2006

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# Quanta Magazine

## CHAIRMAN's MESSAGE

John Mason

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### **Byfleet Workshop**

I would like to thank all members of the Surrey and London Quanta Groups for the effort they put into arranging the Byfleet Workshop on Sunday 25<sup>th</sup> September. I was, however, very disappointed for them by the attendance

### **QL is 21 Workshop and Birthday Celebrations**

It was a great pleasure to meet once more so many of those associated with the QL and the QL scene over the years at "QL is 21". The background hum was very reminiscent of the enthusiasm of earlier workshops

The Ibis Hotel made us more than welcome. It was a great advantage to have everything under one roof.

The room allocated for lectures and demonstrations continually overflowed its 30 seat capacity, and such was the enthusiasm for the topics being presented that the events programme had to be continuously adjusted due to over-runs.

The second meeting room was taken up by the traders together with a QL Trivia Competition devised and organised by Simon Goodwin, and a Mini-Exhibition of QL related paraphernalia devised and presented by Dilwyn Jones (Those of you who did not make Portsmouth will have a second opportunity to see the exhibition at the 2006 AGM in Manchester).

Some 42 Guests, Traders, and Members turned up on Saturday 29<sup>th</sup> with 30 partaking of the Celebratory Dinner.

The Dinner was served Buffet fashion, and certain people were observed securing "seconds" – I wonder who they were?

Sunday 30<sup>th</sup> was much quieter but the lectures and demonstrations were as enthusiastically attended up into the afternoon.

A big thank you to all who made it such a memorable event.

### **Committee 2006/2007**

Once more it is time think about who will comprise your Committee for 2006/2007.

John Gregory has decided to stand down at the AGM. Thank you John for all the work you have put in during the 12 years you have served on Committee.

We need to find somebody to be Librarian in John's place. We also need a further two people – one to be Editor and the other EComms/ Web Master.

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Have you got the necessary skills? Are you willing to take on one of these essential jobs? The future of Quanta could depend on it!

Elsewhere in this issue of the magazine you are invited to send your nominations to reach the Secretary before 1<sup>st</sup> February 2006.

Please give these matters your early and earnest attention.

Finally may I wish you a Joyous Christmas and a Happy New Year in 2006

## **SUBGROUP MEETINGS**

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### **THE BIRMINGHAM BRANCH QL & 68000 User Group**

This long-running group has moved back to its previous venue, the Queens Head pub in the City Centre. Meetings remain open to Quanta members and non-members alike. The Queens Head is in Steelhouse Lane, Central Birmingham, four minutes walk from Snow Hill main-line railway station and has ample street parking nearby.

Meetings are usually on the first and third Monday of each month (but not on Bank holidays unless the previous one was cancelled for that reason). After your first meeting you're expected to pay £1 each time towards the organisation and monthly newsletter costs - except once a year when the group pays all those who attend a pound instead (We provide food twice a year for those who attend the AGM and the group's birthday party) and at meetings we discuss all sorts of things, QL-related and otherwise, usually from about 8:20pm onwards till 10:30 or later. The group owns QL hardware, a disk library and subscribes to relevant magazines. People can join the mailing list for £3.50 per year, even if they can't attend regularly.

The contact number remains Mike Bedford White's, on 0121 708 2560, anytime after 11 am.

**COPY DATE for DECEMBER 2005/JANUARY 2006 Issue is –**

**31<sup>ST</sup> DECEMBER 2005**

Please ensure that your copy reaches the Editor by or before that date.  
Copy on Paper or Magnetic Media or by Email ALL Welcome. Copy on Microdrive or floppy disk or CD to be accompanied by hard copy printout.

Copy by Email to – [editor@quanta.org.uk](mailto:editor@quanta.org.uk)

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## **EAST ANGLIAN QL USER GROUP**

Meetings happen on the 1st and 3rd Sundays of the month at Bramerton Village Hall. Bramerton is just south of Norwich. They start at 1pm and end at 5pm. There is free parking on site, and tea/coffee is also provided free. If you can, please bring your QL system, all welcome.

Tarquin Mills <specyverse@ntlworld.com> or Tel:01603-470399

## **QUANTA DORSET SUBGROUP**

Meetings are held, on the second Sunday of each month at the Merley Community Centre in Harrier Drive, Merley, just south of Wimborne Minster. Time: 2.00pm to 5.00pm. All are welcome.

John Meadows Tel: 01202 576189, or John Mason, 01425 275894.

## **LONDON QL AND QUANTA GROUP**

Meetings are held in the School Room, which is the basement of the Borough Welsh Congregational Chapel, 90, Southwark Bridge Road, London SE1. This is almost opposite the junction with Marshalsea Road, at the other end of which, 5 minutes walk away, is the Borough Underground Station. Free parking is easily available in Southwark Bridge Road for road users, Cyclists are welcome.

Members currently each pay a subscription of £30 per year towards the cost of the hire of the hall and a small additional charge is made for tea/coffee - biscuits are then provided free.

Please bring your QL equipment if possible, all types welcome, e.g., PC portable running emulators. The Group has some systems stored at the venue for its use. In addition, there are lots of donated second user equipment, books, magazines, etc, available for purchase.

Time : 2.00pm to 6.00pm, on the second Sunday of the month.  
No meetings are held in either December - winter break, or August - summer break. Giving 10 meetings a year.

Malcolm Cadman : Tel: 020 8691 5780; email: QL@mcad.demon.co.uk

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## **NEMQLUG - THE NORTH EAST MANCHESTER QL USER GROUP**

Meetings are held at 181, Urmston Lane, Stretford, Manchester. M32 9EH (Near Junction 7 of M60 Motorway - Was Junction 7 M63 Motorway). Our informal meetings start at 7-00pm and finish at 11-00pm. All welcome.  
Meets on the last Thursday of each month (except December).

John/Sarah Gilpin 0161-865 2872 (gilpins@ic24.net) or John/Alison Southern 01625-850067. (tarragon@bigfoot.com)

## **SCOTTISH QL USERS GROUP**

SQLUG meets at George Gwilt's home every second Sunday in the month. Please contact George Gwilt before coming to get the location.

Geogwilt@aol.com

## **SOLENT SUBGROUP**

Meets at Botley Market Hall, all welcome. Park at the back and use side entrance.  
1st Saturday of the month from 2.00 pm to 6.00 pm.

Graham Evans, Tel: 023 8040 3350.

## **SURREY QUANTA SUBGROUP (SQSG)**

Venue is St Giles Church Hall, Ashtead. (This is the other side, towards the downs, of the main Epsom - Leatherhead road, up Park Lane which is at the Epsom end of the town).

From 8.00 to 10.30 pm on the last Wednesday of each month, except December.

Ken Bain 01932 347 432 (to midnight), kenb@bcs.org.uk

## **SUSSEX QL USER GROUP**

Currently without a meeting place, anyone interested should contact Keith Mitchell or Roy Wood.

Roy Wood, 01273 386030 or Keith Mitchell, 01903 742263.

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## QUANTA COMMITTEE PRECIS

Sarah Gilpin

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Committee business was carried out during September and October by email meetings.

Meeting 1 – A proposal by John Gilpin that the mileage allowance for committee members using their cars on Quanta business should be increased in light of rising fuel costs. It was agreed by all that the mileage allowance should be raised from 25p per mile to 30p per mile with effect from 1<sup>st</sup> July 2005.

Meeting 2 – In response to a request from one of the subgroups for financial assistance towards the costs of renting premises for their meetings a proposal by John Mason that the maximum support offered to any subgroup towards such expenses should be increased from £50.00 to a maximum of £100.00 per annum for 2005, and for 2006 to a maximum of £200.00. This proposal was accepted unanimously.

Meeting 3 – Rates for Trader advertisements in the magazine were reviewed, and it was agreed, unanimously, to maintain them at the same rates for 2006 as for 2005 i.e., Full Page Whole Year £50.00, Half Page Whole Year £25.00. In the event of payment in full being received by 31<sup>st</sup> December 2005 a discount of 20% will be given against these rates.

In addition a number of matters regarding the final arrangements for 'QL is 21' were discussed and approved.

The guest list was finalised and invitations sent out. We were delighted that Leon Heller, Simon Goodwin, Dilwyn Jones, David Batty and Stuart Honeyball accepted their invitations and were able to come. Letters of apologies were received from Phil Borman and Sidney Humphries who both expressed their delight at being invited and their regrets for not being able to attend.

Gifts and a "QL is 21" tee-shirt (for sale) were chosen and obtained.

The AA was asked to supply signs for the event, and we had plenty of feedback from travellers who had found them very useful for getting to the IBIS Hotel without getting lost en route.

During the weekend Committee also agreed, no other offer having been received, that the 2006 Annual General Meeting will be held in Man-

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## Annual General Meeting 2006 Notice No. 2

As required by the Constitution nominations of members for election to Committee for 2006 / 2007, and any proposition to be put at the Annual General Meeting must be sent to and be received before 1<sup>st</sup> February 2006 by the Secretary.

All such nominations and propositions must be signed by the proposer and seconder.

Sarah Gilpin, Secretary

## QUANTA SURVEY 2004 – PRIZE WINNERS

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At the start of the afternoon session of “QL is 21” on Saturday 29<sup>th</sup> October John Mason presented the six lucky winners in the draw associated with Quanta’s Survey 2004 with their prizes.

Quanta Member winners –

First prize - £25	–	Bruce Nicholls
Second prize - £15	–	Alf Kendall
Third prize - £10	–	Peter Goff

**Non-Quanta Member winners –**

First prize - £25	–	Peter Jeffers
Second prize - £15	–	Malcolm Lear
Third prize - £10	–	Luigi Lanzoni

Those prize winners who were not present at Portsmouth have been sent their prizes by post



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## HONORARY MEMBERSHIP OF QUANTA – ROY BRERETON

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At the meeting of Committee held on Sunday 5<sup>th</sup> August 2005 it was decided to grant Roy Brereton Honorary Membership for services to Quanta.

Roy has served on Committee since 1990, and at various times has applied himself well to the duties of Chairman, Secretary, Editor, Librarian, and Sales.

On Saturday 29<sup>th</sup> October, during the Celebratory Dinner held as part of “QL is 21” he was presented, to great acclaim, with two glass handles – one was for himself and engraved “*For services to Quanta*”, and the other for his wife, June and engraved “*For Support to Quanta*”



Roy Brereton receiving his Honorary Membership

Photo Courtesy of Tony Firshman

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## Trivia Quiz at QL is 21

Simon N Goodwin

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Besides his presentation on Qdos Classic for the Amiga 1200 - which included tunes from the QL Sampled Sound system and the traditional photos of the slumbering audience taken and rendered from JPEG to glorious Mode 4 and Mode 8 under SuperBASIC control, after serial transfer from the Kodak digital camera via his DIGICAM\_BAS driver - Simon's rucksack also disgorged a pile of little bits of metal and black plastic with special relevance to the history of the QL.

Augmented with several items from Tony Firshman, this was arrayed in numbered sections on one of the desks at QL is 21, to form a hardcore hardware quiz. QL archaeologists were invited to identify each of the 17 lumps of obscure equipment, with extra marks for those who could say not only what each bit was, but what it was for. Items included some of the parts of the original QL that soon get lost, like the ROM cartridge cover, a plastic foot, and an early vacuum-formed dongle; several people identified this as the Kludge that accommodated the earlier versions of Qdos before Sinclair got the "AH" and "JM" versions to fit inside the QL case, but in fact it was another early product that used the same clumsy case - the Sinclair hardware diagnostic ROM package.

I doubt if anyone other than Tony Tebby, who wrote the code, or perhaps Dennis Briggs (RIP) would have identified this correctly. On closer (PEEKing) inspection this rare ROM turns out to be a SuperBASIC program, with a small machine-code bootstrap loader, which checks the functioning of the QL system by banging the metal and reporting the results; some of the tests require add-on hardware but I was impressed to find it ran on a 'modern' Gold Card QL with Minerva and SuperHermes.

Even more mysterious, but still identified by one expert, was the black box with 9 pole D-type sockets at each end and a trailing lead to a QL cartridge card-edge with just two tracks for signals from the QL. This turned out to be an early QL mouse adapter - part of the GigaMouse package made by ABC Electronic in Germany - which converts quadrature signals from an Atari ST mouse into QL cursor key-presses. The ROM slot connection was needed for power, because the CTRL1 socket - unlike the serial ones used by Miracle - provided no power output.

Another almost unlabelled black box, turned out to be the MCS MultiROM. It's a ROM simulator - a RAM which - thanks to an extra wire inside the QL - can work as a ROM for rapid cartridge development.

Supercharge optical copy protection Lenslok, QIMI, ROMDisq, DIY MIDI cable (full marks if you said it would allow connection from the QL NET

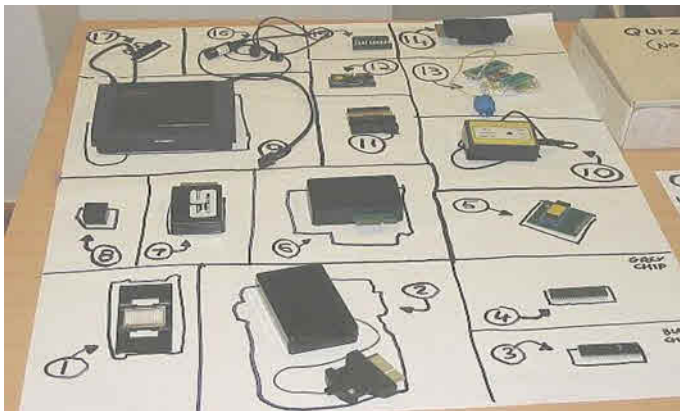
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output to control synthesisers) and a DiRen network prover, plus other obscure widgets, filled the table.

Several people thought the Aurora cartridge adapter was a floppy disk widget. It has the same 34 way two-row IDC connector - indeed it plugs into the four-drive GoldCard adapter elsewhere in the quiz - but the vertical divider on the edge-connector side gave away that it was intended to accommodate a ROM board rather than an old-style (3" or 5.25") disk drive. You could use it to plug a ROM into a disk interface, but it certainly wouldn't work!

The top scorer was John Hall, who got 20 out of 17, clearly ahead of the others, but the average score of about 15 indicated that the nine brave people who entered - of the 43 at the show - still had a deep knowledge of QL esoterica. The scoring system was as eccentric as you might expect - one mark was given for each of the 17 items correctly identified, and half a mark for a near miss. But the question, announced alongside the £5 prize on offer, was 'What's it for?' And replies that comprehensively answered this deeper question earned double marks, which is how John Hall and David Gilham managed to score a mark of more than 100%. Tarquin Mills, organiser of last year's ORSAM show in Norwich came third with a nominal 100%, just ahead of luminaries like Per Witte, Dilwyn Jones and Jochen Merz, with a trio of Johns - Gregory, Gilpin and Roberts - in hot pursuit, well ahead of the dozens who didn't enter or were disqualified as they'd supplied the prize or items to be identified.

Thanks to Quanta for inviting me and my family to the event and providing the quiz prize, and Hotel Ibis in Portsmouth for posting on the collection of techno trivia when I accidentally left it behind in the rush to catch our train back to the Midlands - albeit three weeks later.



Simon's Trivia Quiz

Photo Courtesy of Dilwyn Jones

**JOSHEW MERZ SOFTWARE**

**Kaiser-Wilh.-Str. 302 D-47169 Duisburg**  
**Tel. 0203 502011 Fax 0203 502012**  
**<http://smsq.j-m-s.com> [smsq@j-m-s.com](mailto:smsq@j-m-s.com)**

## **SMSQ/E - New Prices!**

The cold, dark days are coming ... which means more time can be spent for computing. We cannot think of a better event than "QL is 21" to cut the prices of SMSQ/E, to help even more QLers switch to SMSQ/E - be it either with QPC2 on a PC or for existing systems.

QPC2 Version 3 with SMSQ/E ...	now only EUR 59,90
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**Please use the secure contact form on the SMSQ homepage: [SMSQ.J-M-S.COM](http://SMSQ.J-M-S.COM)**  
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## Independent QL Users Group

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Further details from the Membership Secretary

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**or Visit the Quanta Web Site**

***<http://www.quanta.org.uk>***

*E-mail: [membership@quanta.org.uk](mailto:membership@quanta.org.uk)*

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## **Next QUANTA Sponsored Event**

NEMQLUG

MANCHESTER WORKSHOP & QUANTA AGM

3<sup>rd</sup> Davyhulme Scout Headquarters,

“The Endeavour”, Conway Road,

DAVYHULME,

MANCHESTER.

Saturday & Sunday 8<sup>th</sup> /9<sup>th</sup> April 2006

From 10.00 am to 4 p.m. daily. AGM at 2.00 p.m. Sunday.

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## QL IS 21 - THE EXHIBITION

Dilwyn Jones

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When the "QL Is 21" event was first discussed, people like Geoff Wicks issued requests for ideas for talks and presentations during the two day event.

For a while I tried to think of something to suggest which had probably never taken place at a Quanta workshop before.

Knowing that there are plenty of people out there who collect old QL hardware and software, I suggested a little exhibition about the history of the QL. I think it was after the third time I mentioned it that Geoff Wicks said "You've mentioned it a few times, but nobody has taken you up on it." So like a fool I thought I could do a mini-exhibition of this type to help Geoff, as he had taken over the reigns at QL Today from me by now.

I found lots of interesting material in old QL magazine reviews from 1984 and 1985 and quickly put together quite a few pages. A few years ago I had done a "QL Timeline" article taking the QL from its birth in 1984 up to the start of the 21st century, so a lot of the chronological listing had already been done.

The hardware part of the exhibition was more of a problem. I'd long since sold or given away my old collection of stuff, but several people came to help here. John Gilpin and John Gregory both have good collections of old hardware and John Gilpin tried to contact a few people to see what we could source. David Batty also brought some interesting hardware for the display as well as a few items from people like Simon Goodwin. Despite my early fears, we ended up with 2 complete display stands-worth of printed material plus some in ring binders and books as well as four tables crammed full of hardware, almost exactly what I had guessed and estimated there would be.

In the event, the hardware collection taught me a thing or two, even though I thought I'd seen everything QL there was to see over the years.

Although I knew about ICL OPDs and CST Thors, I had never physically seen the machines. OPDs are based on QL hardware, including twin Microdrives, but use ICL's own variation of the operating system and BASIC, and have a built in telephone handset. It was designed as a personal workstation for business, hence the name OPD or One Per Desk. It is not really QL compatible in terms of software, but is derived from a QL.

The Thor 1 is a CST design based on a QL circuit board and its own Argos variant of QDOS. It has twin floppy drives, expanded RAM and a few other goodies. It's all built into a sturdy metal case and has a very solid, professional feel to it, in a way it's the version of the QL you wish Sinclair had released originally or as a QL2, it could certainly have transformed the fortunes of the QL had it been launched by Sinclair in 1984 or 1985.

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One surprise which turned up at the exhibition was a prototype Sinclair RAM expansion board (we thought it had 128K or 256K of RAM from the chips on it) which never got sold by Sinclair. Also present was the Sinclair/Micro Peripherals floppy disk drives and interface.

There was a collection of serial - parallel printer interfaces, which were quite common in those days and an essential accessory for connecting the QL to a parallel printer before PAR ports became common. The ones on show were three variants of the unit sold by Miracle Systems - the early white boxed one, then the larger black box one and the more recent version where the electronics were built into the centronics connector hood itself. Other units from companies like Micro Peripherals and Connexions were also on show.

Someone brought along some early Quest expansion cards. These are quite large compared to other expansion units and came with solid metal covers rather than the standard plastic covers which most used at the time. Quest advertised widely in the early days, often with colourful cardboard inserts in the magazines of the day. Quite how many they sold I will probably never know, but they were certainly ambitious in those early days.

Another expansion I'd never seen before was a Medic unit. These combined disk interface, memory expansion and parallel printer port all into one expansion card which is slightly larger than most from that time. Medic advertised widely, took a lot of money and disappeared without fulfilling everyone's orders. Not many of these units were made, but apparently they are rather good ones, especially if combined with a Tony Tebby upgrade ROM. Many of those you come across second hand apparently have a base plastic cover but no top cover. Get a decent unit and they make a respectable expansion for a backup QL.

CST, who made the Thor, had also made various QL expansion cards, including a RAM card and the QDisk interface, although I had never seen the RAM-Plus memory card on show. It appears to have a few ROM slots for expansion ROM, and a stepped space to plug in another interface (e.g. a disk interface).

Other disk interfaces were ten a penny then! I saw a Cumana unit which is just a disk interface (no memory expansion) - Cumana was a company which were better known at the time for their BBC micro products. There were also some units by companies like PCML, although I can't remember much about them. I've since found an article by the late Dennis Briggs in IQLR magazine about older interfaces and would have included this in the interfaces collection had I found it sooner.

In terms of memory expansion, there were some very interesting units I couldn't identify, including an internal ram expansion board which we unable to conclusively identify, but was thought to be of Italian origin, possibly by SPEM.

SPEM's QL video digitiser was on show. This is a professional looking unit in silver

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and black with a sloping front and slider controls. Rather more basic in terms of appearance (i.e. a black box!) was the CL Systems QL video digitiser. Both units allow connection of a camera or other video source and scan in mode 4 or 8 only.

Probably the oldest unit on display was an original Kludge. The first QLs shipped to customers in April 1984 had part of the operating system in an external plug in EPROM carrier card encased in black plastic. Looked good, but didn't perform well, those early QDOS systems such as version FB were quickly upgraded. I'm not sure where the name Kludge came from, it was also called a Dongle but that came to mean an anti-piracy plug-in chip on other systems, so the QL one is still called a Kludge. Interestingly, we thought there was another Kludge at the show, but that turned out to be a Sinclair test ROM unit which plugs into the EPROM slot at the back of a QL for testing purposes, obviously Sinclair used a common case design for both. They are virtually identical from the outside.

Two Miracle hard disk systems were shown. One was a 40MB production unit in black, another was David Batty's prototype Miracle hard disk unit, which was an interesting shade of brown rather than QL black. Rust brown in fact - those prototypes were not painted and the steel casings have rusted over the years. They also have no fans and had only 20MB hard disks. They are quite large and heavy by today's standards, and connect to the QL via the EPROM expansion slot using an interesting double-read access to overcome the fact that the EPROM slot is read-only (in effect the data is output as a second address immediately after the address cycle if I have understood the explanation correctly, which probably slows access down due a bit). A black Miracle 5.25 inch disk drive was also shown. If you've never seen them, 5.25 inch disks were cardboard sleeved floppy disks which were quite common in the early and mid 1980s. Many early QL disk systems used them, because at the time the disks were much cheaper than the newer 3.5 inch ones.

DiRen's network prover (originally sold by former Quanta chairman Robin Barker) was there, along with a Micro Process Controller from the same company. This is a cute little black box with 6 relays in it, controlled via the serial port - you can set and reset individual relays according to the values of bits in a byte value sent to it if I remember correctly. The Network Prover is a small black box with an LED on it to indicate network activity, a confidence-building measure if you were unsure if the QL network was working or not. Simon Goodwin explained that you could easily modify a QL DIY Midi adaptor lead to operate as such at the end of a network to serve the same purpose with the addition of a couple of components, since the network prover basically only consisted of an LED wired between the input socket and output lead.

The Sandy Q-Power regulator was designed to replace the power regulator in a QL. It involved opening up the QL and doing some basic surgery. Unfortunately I remember that it came unstuck with some later interfaces which needed a good surge of power initially to start up, which Q-Power sought to smooth out and prevent.

QView's CAPS LED kit was an interesting little device which connected an LED to legs of chips in the QL to provide a CAPS LOCK indicator which you could fit onto a



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QL case.

Two versions of a QIMI interface were shown side by side, so you could see the differences. The Quanta version seems slightly smaller and had no backup clock battery on it. The original Tebby/QJump/Care unit had a sleeved battery connected by flying lead to the board.

Another mouse interface on show was a more recent SuperHermes or SuperHermes Lite (not sure which it was). It served to show how even on the QL scene miniaturisation became obvious over the years when you consider the size of a QIMI or SuperHermes against a monster like the early Quest RAM expansions!

An interesting unit which Simon Goodwin showed was an ABC Electronic mouse interface, which had an EPROM socket connector with only two pins connected. This had two 9-pin connectors on the black box for a joystick and a lead which we think connected to the QL CTL1 joystick port, presumably making it a cursor emulating mouse. This was made in Germany by ABC Electronic, who produced a lot of hardware in the early days about which little is known these days.

There was a replacement QL keyboard from Schoen there as well. This is a circuit board with proper keys mounted on it, designed to replace the top half of the QL case. Although much better for typing than most original QL keyboards, it required an upgraded second processor for better operation, but some of the second processor chips at the time caused serial port problems as a side effect.

A rare item on show was an Oberon Omni Reader OCR device for the QL. This is an A4 sized text scanner which had software to work with the QL, although I'd never seen this unit before. Another type of scanner on display was Jurgen Falkenberg's print head scanner, an interesting little optical device which sat on or in place of a print head, effectively turning a printer into a scanner. It worked well enough but was clumsy and a bit slow, with software which tended to be rather fussy on what it ran.

A rare but interesting device was the QEP III EPROM programmer from Tony Tebby. Originally sold by QJump and Care Electronics, and more recently by Qubbesoft P/D, for many years this was the "standard" method of blowing EPROMs for the QL.

It's easy to focus on the electronics, but there was plenty non-electronic as well. Companies like Transform and 4-Systems made good money in the 1980s out of plastic storage boxes for Microdrive cartridges. Transform's cases have a hinged lid with two sets of divided slots for about 20 cartridges and a centre section into which you can keep a few more cartridges or other loose bits. These cases could be interconnected by little plastic locking strips underneath, although I'm not sure many of us had that many cartridges when they were nearly £5 each in those early days! By the time cartridge prices went down to £1.99 many of us had decided to buy disk drives. Also on show were the original Sinclair and Psion Microdrive wallets, a small 9x12 cm plastic wallet which could hold 4 Microdrive cartridges, ideal for holding the four Psion QL programs on Microdrive for which they were presumably intended.

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We also had some early Sinclair brochures on show. These were in silvery grey and black, like the original QL box which was also on display. There were software and hardware brochures and copies of Sinclair adverts from the early days, showing how Sinclair was not averse to spending on good quality advertising. I'm sure a few of us practised typing on the big keyboard shown on these glossy brochures before we actually got our QL in 1984!

There was a copy of Enrico Tedeschi's Sinclair Archaeology book. This is an interesting book full of clippings and copies of just about everything ever printed about Sinclair and his products, from the early days where he bought and sold surplus MAT transistors to more recent eras like the C5 electric trike and other powered cycling accessories like the Zeta. Not the kind of book you can put down once you've started reading it.

There were copies of some early Sinclair reviews on show and oh boy, did some of them make for interesting reading! Looking back, it's sometimes surprising that the QL did as well as it did when you consider how some of the industry big guns were lining up to take pot shots at Sinclair at the time, although another article from a magazine at the time showed that Sinclair were not alone in running into problems, other home computer companies from that period also got into trouble and vanished from the scene in the mid to late 1980s.

In terms of the printed material on display, we had articles about Sinclair's software division, run by one Alison Maguire, articles about people like David Karlin and Tony Tebby, behind the scenes look at Psion at the time and some information about David Potter, Martin Stamp, Colly Myers, Charles Davis and Martin Brown, the team leaders behind the Psion suite for the QL. There were articles about the innards of the QL and one I hadn't seen before detailing the inside of a Microdrive cartridge. Apparently it consisted of 8 metres of 2mm wide video tape.

Many people commented on the article about Linus Torvalds (Mr Linux) and his past connection to the QL scene. In the early days he had a QL in his native Finland and got frustrated by having to rely on mail order from Britain to get products for it. He did a lot of quite advanced hardware and software for the time before moving on to other computers.

We had articles about the history of Quanta, including a copy of the first ever issue of the newsletter from early 1984, issued before the first QL went out to customers! It was all the more interesting because Quanta founder Leon Heller was able to attend QL Is 21 and we spent some time reminiscing about those early days.

There were articles about early QL magazines and sample issues of QLUB, QL Leisure Review, QL Technical Review, QL World, QL User and others. Quite a few people seemed to enjoy picking up copies and browsing through magazines from 20 years ago! It was very interesting to be told by many people that they had their own complete collection of magazines, even some people like David Batty who have not

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been active QLers for a few years have a collection of every single QL World and QL User ever issued!

I'd been able to find a lot of information and pictures about the QL launch by going through old magazines and this seemed interesting to people too. I for one seemed to have almost forgotten the excitement and adrenalin of those early days, waiting for things to arrive, what would happen next, what would come down in price next and so on.

Someone kindly supplied a copy of a review of GST 68k/OS for the QL. This was to have been the official QL operating system, but somewhere along the line Sinclair went for QDOS instead and GST launched 68k/OS as an alternative product for the QL which was never that successful, although technically quite advanced from what I know of it. Never having used 68k/OS properly, I was quite fascinated by the article. There are still 68k/OS units in people's collections (Marcel Kilgus and Simon Goodwin apparently have ones).

On a lighter note there was humour - a copy of a "What Does QL Stand For" cartoon which was quite hilarious plus copies of some of the better cartoons from QL Today over the years.

As we all know it all came to an end for Sinclair in 1985 when Sinclair sold out to Amstrad and the exhibition carried several pages of information on that sad period.

More positively, there were extensive articles about QL compatible computers over the years and a feature on windowing systems for the QL. QDT is not the only fancy front end ever for the QL you know!

All told, I thoroughly enjoyed the opportunity to put together this exhibition and most present seemed to appreciate and enjoy my work too, to the extent that many asked me to keep it safe and bring it to workshops in other areas such as next year's AGM likely to be held in Manchester. It was a focal point to the room and certainly seemed to bring people together to talk and look back and indulge in nostalgia, and was probably especially interesting for those who are not active QLers these days and who had been actively invited to this meeting or heard about it and turned up to renew old friendships and interests. I did try to issue copies of the QL emulators CD to some of these people to see if I could encourage any of them to take an interest in what the QL scene has to offer in 2005 (and judging by the talks and lectures which took place at QL Is 21 there is plenty to take an interest in!).

Most of the printed material is saved on disk where its original material, and other material can be scanned for posterity, if there is demand I may put it all onto a CD for posterity at some point, especially when I get time to add the photos I took of much of the old equipment I hadn't seen before.

I was asked if I could pen to paper about the exhibition, as it was thought to be the first of its type at a workshop. I've also sent some pictures of the exhibition with this

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article, if space in the newsletter permits. There are photos taken at the Portsmouth meeting on the websites of Tony Firshman and myself:

[www.firshman.co.uk](http://www.firshman.co.uk)

[www.dilwyn.uk6.net/gen/quanta/quanta.html](http://www.dilwyn.uk6.net/gen/quanta/quanta.html)

In both cases, follow the links to the Portsmouth QL Is 21 page.



Omni Reader

Quest RAM

## QL is 21 - Mini Exhibition

Photos Courtesy of Dilwyn Jones & Roy Brereton

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## QL is 21 - MORE PICTURES



Reception 1



Reception 2



An enthrall'd Audience listening to Leon Heller's talk



Quanta Survey First Prize winner Bruce Nicholls receiving his prize from John Mason



Celebration Dinner



Roy Brereton, Leon Heller & John Mason  
3 Quanta Chairmen



Quanta Committee members - Past & Present

Photos Courtesy of Roy Brereton

### MOVING ON

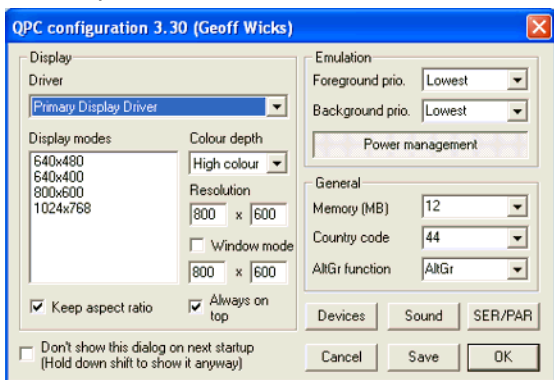
Maybe the children have been nagging you to get rid of that black box and buy something more modern. Perhaps you have accumulated masses of Quill files containing important family or business documents that you need to transfer to a PC. Or the children now live far from home and emailing is the cheapest and quickest way to keep in touch.

Whatever the reason for doing so, it is only with reluctance that you send a faithful workhorse to the knacker's yard. The black box may be older and less reliable than it once was, but it has served you well for about twenty years. What happens if you take the step over half of QL-ers have already taken, and buy a PC AND QPC2?

Over the last five years I have had contact with many people who have moved on to QPC2 with varying degrees of success and satisfaction. Some have found it too difficult to understand and put it back on the shelf to gather dust. Others have taken to it with enthusiasm and have found it the perfect solution for their problems.

What are the main difficulties a Quill and black box user could have after moving on to QPC2?

First of all installation. Here you need have no worries. There was a time in the distant past when QPC was tricky to install, but nowadays, like most PC programs, installation is done for you by the computer. More difficult is customising QPC2 for your own use after you have installed it. You do this via the screen shown in the picture.



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This is a fearsome looking screen, but there is no need for panic. Several of the screen items are there for the experts and you can safely ignore them. You only have to make any changes once, although you can make further changes if you want. At the bottom right hand corner of the screen is a button marked "Save", and this saves any changes you make. If you have difficulty with this screen you can go for help at your next workshop or your local subgroup. If that is not possible Quanta may know of a local QL-er who could help you or we could try a telephone tutorial.

Let us look at the parts of the screen you need to know something about. On the left hand side are "Display Modes". QPC2 can use screens bigger than the normal QL screen, so you will often find the familiar red and white boxes do not fill the complete screen, but are in the top left hand corner. This has the advantage that you can get more information on the screen, but the disadvantage that the letters are smaller and thus more difficult to read. You have to choose the compromise that best suits you. Just a word of warning. One gentleman I helped had abandoned QPC2 because he found the letters too small to read. He had made the mistake of thinking the larger the numbers, the larger the letters. It is the other way round. The smaller the numbers in "Display Modes", the larger the letters.

To the right of display modes is colour depth. This simply lets you choose between the new and the old QL colours. Most programs will work just as before if you choose "High Colour" mode, but if not you use QL colour mode. If you change colour mode, you will find the choice of display modes also changes. I have my colour mode set to high colour. You will see I do not have a standard display of 512 x 256 pixels. If I changed colour mode to QL colours the standard display would be possible. If I chose this display size then the white and red boxes would cover the entire screen as they do on the black box QL.

Look further right and we see a box marked "Memory". This is like choosing between the memory size of a Trump Card, a Gold Card or a Super Gold Card. Usually you will need at least 2Mb, the memory size of a Super Gold Card, but if you want to use the new colours, you will need to set this higher.

Now we move to the bottom of the screen. There is a button marked "Devices". This tells QPC2 where your disk drives are, but you may have something new to learn here.

First of all floppy disks. QL floppy disks and PC floppy disks are physically the same, but the way they store their information is different. Normally you



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cannot read from and write to PC floppy on a QL or to a QL floppy on a PC. QPC2 is an exception as it can read and write to both types of floppy, although you have to remember that a PC uses a dot "." where the QL uses an underscore "\_". You also have to remember that to store QL programs you must always use a QL floppy.

You could face one or two problems with floppy drives. Most QLs have two floppy drives flp1\_ and flp2\_ , but most PCs only have one called A:. If there is a second it is called B:. You will have to get used to using just one floppy drive. Another problem is that if you currently use a Trump Card and your disks are HD disks, then these will be unreadable on QPC2. You should transfer the files to DD disks or failing that cover the hole on the left hand side of the floppy with masking tape. Finally if you use ED disks PCs cannot handle these and you will have to transfer all your files to HD disks.

Devices are more than just floppy disks. Your PC will have a hard disk and QPC2 allows you to allocate part of that hard disk for QL use. It is what we call device win1\_. You can also write directly to the PC part of the disk. Then we call it device dos1\_. If your PC has a CD or DVD drive, then the equivalent names could be win2\_ and dos2\_. Many QL-ers now like to use "pen" or "stick" memories and on my system that is win3\_ and dos3\_. (This is a slight simplification. In practice the numbers could be different on another PC.) Do not forget that if you want to save QL programs to the hard disk then you must do it to the QL section (win1\_) of the hard disk. If you want to transfer text files or simple data from the QL to the PC, this is where the dos1\_ command comes in handy.

It is possible to use QPC2 just from floppy drives, but most users prefer to set up a QL hard disk as all their programs and files are then stored on the computer and you no longer need a huge box of floppy disks by your side. (You will still need disks as security backups.)

You may need help with device configuration through a workshop, a subgroup, a QL friend or a telephone tutorial. I recently arranged with one user to telephone me when we both had out machines set up so that I could guide him through the process. It took us about 10 minutes.

The Sound button enables you, among other things, to set the loudness of the QL's Beep command. You need not worry too much about the "other things".

Finally we have "SER/PAR". This enables you to set the device to which your printer is attached. Generally speaking if your printer works on a black box QL it should also work with QPC2. You may have to make small adjustments to

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your printer drivers. For example, to print out from the Psion programs in QPC2 I had to add a Form Feed as a postamble to my printer driver.

If a new printer comes as part of a package with your PC, then there is a good chance it will not work with QPC2. In that case you will need another program QPC Print. That is beyond the scope of this article.

There are a few other problems you may come across when you move onto QPC2. Maybe you have heard scary stories about a different operating system, boot programs, the pointer environment and program incompatibilities.

In practice there is little to worry about. Your black box QL will most likely have a JS or JM ROM as its operating system. Back in the early days of QPC these were copyright and thus QPC2 had to have a different operating system from black box QLs. It is called SMSQ-E and is an improved and extended version of the operating system of your black box.

You have probably read a lot about the complicated boot programs some people use to start up QPC2. A boot program is a basic program setting up the computer for the way you want to use it, and it can be as simple or as complicated as you want. If you use a boot program on your black box, it will be relatively simple to adapt this for use with QPC2. You could even use QPC2 without a boot program, but most users find one useful.

The biggest scare stories are told about the pointer environment. Yes, the pointer environment is difficult. Very difficult. But only if you are a programmer who wants to write programs using it. For everyday use it just sits in the background in your computer and you can forget about it. It allows you to run some programs that you were not able to run before and to use a mouse if you like doing this. It is built into SMSQ-E so you do not even have to worry about loading and activating it.

Most of your black box QL programs will run on QPC2 and you can still dabble in programming if that interests you. The programs that are most likely to have problems are very old ones and some games, but not Quill and the other Psion programs. Some versions of Chess may give problems, but if you have proof of purchase, Quanta can help you with a QPC2 compatible version. However, QPC2 is more powerful and much faster than the black box so you might find it more difficult to win against the computer.

Finally a quick word about transferring your QL wordprocessing files to PC format, and here I have to declare a commercial interest. If you use Perfection

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or Text87, you do not use accented letters and you do not want to preserve things like underlining and bold text, then it is easy to transfer your files using QPC2. This is also possible with Quill although, for technical reasons concerning line feeds, I would recommend against it. If you want to retain bold and underlined text then you will need a program like my QL-2-PC Transfer. Using this program you can quickly transfer your files and save them to a PC disk. It then takes just a couple of clicks to load the document into Microsoft Word. I am quite happy to advise and help people over transferring files without any obligation. Please feel free to contact me so we can discuss what is the best way for you.

### TEACHING SUBTRACTION

Steve Poole

---

Last time around came the Additions program, so now it's time to revise your subtractions.

Once again this program is primarily designed to help children to practise and improve their basic arithmetic skills, but you will first have to show them how the program works using the following scheme, which soon becomes obvious. (Remember, there are many ways of teaching arithmetic tabulations, which especially vary from country to country, so I am writing these programs in the way which uses the QL best).

After RUN, choose the number of figures per number and the number of tries per entry. Then the main 'FOR' loop waits for input on each column. You may be a little surprised with the first column as every column is treated with rigorously the same method:

1: First you have to hit TWO numeric keys indicating the digits to be 'taken-away' on row 3 of the screen, that is, TWO digits including any leading zero, (as the answer may occasionally be 10, if the right-digit is '9'), not forgetting to add any 'carry'. (I had to put a space between ALL characters in the program, as otherwise the two 'adjacent' digits would have messed up the screen). Moreover, to indicate that TWO digits are required, TWO underscores are flashed at the required place.

2: Then, secondly, touch the 'tens'-digit on the top row for each column, (being either 0, or 1 if you need to take away the lower digit from 10).

3: And finally hit the 'remainder'-digit on row 4.

At first you may find this scheme confusing, but it is in fact exactly the same method that most of us learnt at primary school. Just retry several times until you realise exactly what you are doing. The only difference is that you MUST enter all leading zeros, whereas at school you probably left them out, (as the

(Continued on Page 29)

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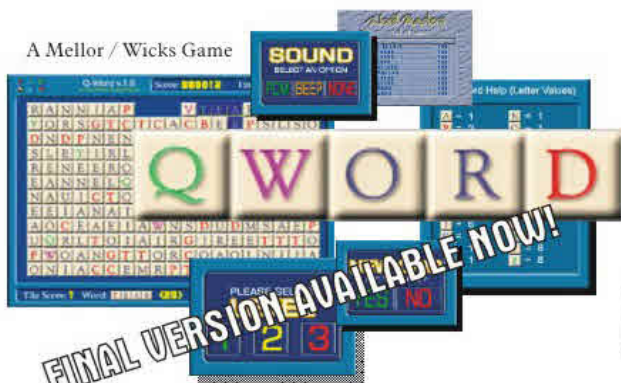
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The object of the game is to clear letter tiles from the grid by using them to form words. Points are based on the length of the word and the letters used. Simple, yet addictive!

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human brain assumes them automatically), which would complicate the program to include them, and thus encourage sloppy thinking.

You are allowed as many retries per entry as you chose at the beginning of the program, so the computer encourages the child to correct his or her own mistakes, by allowing a second or third chance. For the final try, the QL prints the required operation horizontally on the bottom line of the screen, in case the child has become confused by which figures to add. This will help to clarify his ideas too.

Just try it out for yourselves until you get the hang of it. It is basically the same method that you learnt at school. The program automatically waits for a one- or two-digit response at each step, and updates the screen as it goes. This is better than you having to resort to INPUT (requiring an ENTER keypress), and also has the advantage that it error-traps every one-touch 'INKEY\$' keypress.

The program could easily be compressed as there are some blatant repetitions of code, but I left it as it is for the sake of consistency, as parts of this routine will be used in the DIVISION\_bas program. Having begun by getting nastily bogged down with array-indexing, I made the row and column addressing use the same order, contrary to my usual practice. This makes both 'array' and 'print' handling straightforward, as they both share the same loop index order, whereas 'AT' usually inverts X and Y parameters.

All the same, matrix-manipulation is NOT my favourite pastime... (For example with character bit-map pixel manipulations, the arrays are both upside-down and back-to-front! Yeuch!).

For the sake of simplicity I have not included multiple rows of subtractions or negative numbers. If any of your offspring get 0% errors, they will have made my programming-time worthwhile. The QL can guide your children to better performance with unfailing patience.

Next time multiplications ...so Happy Revisions!

```
100 ::
110 REMark MINUS_bas. by S.Poole, v9aug2005.
120 REMark LRUN under QDOS or EXEC under SMSQ/E.
130 CLEAR: OPEN#1,con_16: WINDOW 512,256,0,0
140 :
150 REPEAT loop
160 REMark INITIALISE THE PROGRAM:
170 CSIZE 1,1: PAPER 2: STRIP 0: INK 7: CLS
180 PRINT " How many figures long? (1 - 9)"
190 i$=INKEY$(#1,-1): n=i$
200 SElect n: =1 TO 9: =REMAINDER : GO TO 180
```

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```
210 PRINT " How many tries each? (1 - 3)"
220 i$=INKEY$(#1,-1): k=i$
230 SELEct k: =1 TO 3: =REMAINDER : GO TO 210
240 CSIZE 3,1: CLS
250 :
260 :
270 REMark INITIALISE THE GRID:
280 DIM t$(5,n+1): tries=0: er=0
290 FOR j=1 TO 5: FOR f=1 TO n+1: t$(j,f)='0'
300 n1$='0': n2$='0'
310 :
320 FOR f=1 TO n
330   t$(2,f)=RND(0 TO 9): AT 2,f*2
340   PRINT t$(2,f): n1$=n1$&t$(2,f)
350 END FOR f
360 :
370 FOR f=1 TO n
380   t$(3,f)=RND(0 TO 9): AT 3,f*2
390   PRINT t$(3,f): n2$=n2$&t$(3,f)
400 END FOR f
410 IF n2$>n1$: GO TO 300
420 :
430 :
440 FOR f=n TO 1 STEP -1
450   f2=f*2
460   :
470   REMark ADD CARRY TO SECOND FIGURE?:
480   AT 0,1: CLS 3
490   PRINT "1st '1' if 10 : 2nd add carry"
500   ct=1: new_t3f=t$(3,f)+t$(1,f+1)
510   :
520   AT 3,f2: PRINT t$(3,f)
530   IF ct=k THEN
540     AT 11,1: PRINT t$(3,f)!+'!t$(1,f+1)
550   END IF
560   i$=key2$(3,f2-1): tries=tries+1
570   AT 3,f2-1: STRIP 2: PRINT' ': STRIP 0
580   :
590   IF i$=new_t3f THEN
600     BEEP 12345,6
610     ELSE
620     er=er+1: BEEP 12345,67
630     IF ct<k: ct=ct+1: GO TO 520
640   END IF : AT 3,f2: PRINT new_t3f
650   AT 11,1: CLS 3
660   :
```



## Quanta Magazine

```
670      :
680      REMark GET NEW 'TENS' FIGURE:
690      AT 0,1: CLS 3
700      PRINT 'Hit 1 for ten-digit, or 0'
710      IF new_t3f > t$(2,f): t$(1,f)='1'
720      ct=1: AT 1,f2: PRINT'0'
730      :
740      IF ct=k THEN
750          AT 11,1: PRINT new_t3f!'>!t$(2,f)!?'
760      END IF
770      i$=": i$=key$(1,f2-1): tries=tries+1
780      :
790      IF i$(1)=t$(1,f) THEN
800          BEEP 12345,6
810          ELSE
820              er=er+1: BEEP 12345,67
830              IF ct<k: ct=ct+1: GO TO 740
840      END IF : AT 1,f2-1: PRINT t$(1,f);'0'
850      AT 11,1: CLS 3
860      :
870      :
880      REMark GET COLUMN REMAINDER:
890      ct=1: AT 0,1: CLS 3
900      PRINT 'Hit remainder-digit'
910      :
920      IF ct=k THEN
930          AT 11,1
940          PRINT t$(1,f);'0!'+'!t$(2,f)!'-!new_t3f
950      END IF
960      :
970      i$=": i$=key$(4,f2): tries=tries+1
980      t$(4,f) = t$(1,f)&'0' - new_t3f + t$(2,f)
990      :
1000     IF i$=t$(4,f) THEN
1010         BEEP 12345,6
1020         ELSE
1030             er=er+1: BEEP 12345,67
1040             IF ct<k: ct=ct+1: GO TO 920
1050         END IF
1060         AT 3,f2: PRINT t$(3,f): AT 4,f2: PRINT t$(4,f)
1070         AT 11,1: CLS 3
1080     END FOR f: STRIP 2
1090     :
1100     :
1110     REMark EPILOGUE:
1120     FOR f=1 TO 2*n+1 STEP 2: AT 3,f: PRINT,''
```

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```
1130 score=(er*100)/tries
1140 AT 0,0: CLS 3: AT 1,0: CLS 3
1150 AT 6,1*2: PRINT 'ERRORS:!'INT(score)&%'
1160 AT 11,1: PRINT 'Hit ESC to Quit'
1170 i$=INKEY$(#1,-1): so=CODE(i$)=27
1180 IF so: WINDOW 256,206,256,0: CLS: CSIZE 0,0: STOP
1190 END REPeat loop
1200 ::
1210 DEFine FuNction key$(dn,ac)
1220 REMark GET ONE INKEY$ CHARACTER:
1230 OVER -1: STRIP 4
1240 :
1250 REPeat loop2
1260   AT dn,ac: PRINT '_': ky$=INKEY$(#1,15)
1270   IF ky$<>": EXIT loop2
1280 END REPeat loop2
1290 :
1300 IF ky$ INSTR '0123456789': ELSE NEXT loop2
1310 OVER 0: STRIP 0: RETurn ky$
1320 END DEFine
1330 :
1340 DEFine FuNction key2$(dn,ac)
1350 REMark GET TWO INKEY$ CHARACTERS:
1360 OVER -1: STRIP 4
1370 :
1380 REPeat loop3
1390   AT dn,ac: PRINT'__': ky1$=INKEY$(#1,15)
1400   IF ky1$<>": EXIT loop3
1410 END REPeat loop3
1420 :
1430 IF ky1$ INSTR '0123456789': ELSE NEXT loop3
1440 OVER 0: STRIP 2
1450 AT dn,ac: PRINT ky1$: ac1=ac+1: OVER -1
1460 :
1470 REPeat loop4
1480   AT dn,ac1: PRINT'_': ky2$=INKEY$(#1,15)
1490   IF ky2$<>": EXIT loop4
1500 END REPeat loop4
1510 :
1520 IF ky2$ INSTR '0123456789': ELSE NEXT loop4
1530 OVER 0: STRIP 2
1540 AT dn,ac1: PRINT ky2$: STRIP 0
1550 ky$=ky1$&&ky2$: i3$=INKEY$(#1,25)
1560 RETurn ky$
1570 END DEFine
1580 ::
```

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Feeling out on a limb?  
Reach out for QBranch.  
Suppliers of computer solutions  
Hardware and Software



## New Programs and Updates ! Price Drops !

We have many new things available at the moment :

QDT - The QL Desktop V1.01 Out Now!	£ 30.00 + P&P
EASYPTR parts 1&2 version 4 - high colour	£ 41.00 on CD with manual in Adobe format
EASYPTR parts 1&2 upgrade	£ 27.50 on CD (send master disk)
QPCPrint - print to any printer from QPC2	£ 27.50 on CD with manual in Adobe format
QPC2 v 3.30 (SMSQ/E v3.10 needed for QPCPrint)	£ 42.00 - Price Drop !!
Upgrade from version 3.xx	£ Free. Send Master disk and return envelope and postage
Upgrade from v2.xx	£ 13.90
Upgrade from v 1.xx	£ 34.00
SMSQ/E for all platforms	£ 27.00 - Price Drop !

The Aurora version now includes the colour drivers as Standard

Keyboard mebranes one left	£ 17.50
New Super/Gold Card Batteries	£ 10.00 + P&P
Aurora Motherboards - new	£ 65.00

More Second User hardware due in soon.

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email: sales@qbranch.demon.co.uk skype: roqbranch  
web : <http://www.qbranch.demon.co.uk>

# TF Services

## Compswitch

A UK 4-way trailing socket designed to switch off computer peripherals automatically when the computer is switched off, or (in the case of an ATX computer) when it auto-powers down. *Compswitch* has one control socket, and three switched sockets. Can be used with lights/hifi/monitors—ie a QL monitor can be used as a switch control.

Cost **£24**

## superHermes

A major hardware upgrade for the QL. All Hermes features (working ser1/2 at 19200, independent baud rates/de-bounced keyboard/keyclick) IBM AT kbd I/F // HIGH SPEED RS232 at 57600// serial mouse port and 2 other RS232 inputs// 3 I/O lines // EEPROM

Cost (including manual/software) .....**£90** (£92/£93)  
IBM AT UK layout Keyboard.....**£11** (£13/£15)  
Serial mouse.....**£8** (£8.50/£9)  
Capslock/scrolllock LED .....**£1** (£1.50/£1.50)  
Keyboard or mouse lead .....**£3** (£3.50/£3.50)  
High speed serial (ser3) lead.....**£4** (£4.50/£4.50)

Hermes available for **£25** (£26/£27) Working ser1/2 and independent input, debounced keyboard.

SuperHermes LITE: All Hermes features (see above) + an IBM AT keyboard interface only.

Cost (incl keyboard lead) .....**£53** (£54/£55)

## QL REPAIRS (UK only)

Fixed price for unmodified QLs, excl microdrives. QLs tested with Thorn-EMI rig and ROM software.

**£27** incl 6 month guarantee

## Minerva

The ORIGINAL system operating system upgrade

OTHER FEATURES COMMON TO ALL VERSIONS

DEBUGGED operating system/ autoboot on reset of power failure/ Multiple Basic/ faster scheduler- graphics (within 10% of lightning) - string handling/ WHEN ERROR/ 2nd screen/ TRACE/ non-English keyboard drivers/ "warm" fast reset. V1.97 with split OUTPUT baud rates (+ Hermes) & built in Multibasic.

First upgrade free. Otherwise send **£3** (+£5 for manual if reqd). Send disk plus SAE or two IRCs

MKL...**£40** (£41/£43) MKIL...**£65** (£66/£67)

MINERVA RTC (MKII) + battery for 256 bytes ram. CRASHPROOF clock & I<sup>2</sup>C bus for interfacing. Can autoboot from battery backed ram. Quick start-up.

## QL RomDisq

Up to 8 mbyte of flash memory for the QL. A small plug in circuit for the QL's ROM port (or Aurora) giving 2, 4 or 8 mbytes of permanent storage - it can be thought of as a portable hard disk on a card, and reads at some 2 mbytes per second. Think of it - you could fully boot an expanded QL, including all drivers/SMSQ etc off RomDisq at hard disk speed with only a memory expansion needed.

2 mbytes RomDisq.....**£39** (£40/£41)  
4mbytes RomDisq.....**£65** (£66/£67)  
8 mbytes RomDisq.....**£98** (£99/£100)  
Aurora adaptor.....**£3** (£3.50/£4)

## MPLANE

A low profile powered backplane with ROM port

A three expansion backplane with ROM port included for RomDisq etc. Aurora can be fitted in notebook case and powered off single 5V rail - contact QBranch for details. Two boards (eg Aurora and Gold Card/Super Gold Card/Goldfire fixed to base. Suitable for Aurora (ROM accessible from outside) & QL motherboard in tower case. Specify ROM facing IN towards boards, or OUT towards back of case.

Cost .....**£34** (£35/£36)

## I2C INTERFACES

Connects to Minerva MKII and any Philips I<sup>2</sup>C bus

**Power Driver Interface** 16 I/O lines with 12 of these used to control 8 current carrying outputs (source and sink capable)  
2 amp (for 8 relays, small motors).....**£40** (£43/£44)  
4 amp total (for motors etc).....**£45** (£48/£50)

**Relays** (8 3a 12v 2-way mains relays (needs 2a power driver).....**£25** (£28/£29)

**Parallel Interface** Gives 16 input/output lines. Can be used wherever logic signals are required.....**£25** (£27/£28)

**Analogue Interface** Gives eight 8 bit analogue to digital inputs (ADC) and two 8 bit digital to analogue outputs (DAC). Used for temp measurements, sound sampling (to 5 KHz), x/y plotting.....**£30** (£31/£32)

**Temp probe** (-40°C to +125°C).....**£10** (£10.50/£11)

**Connector for four temp probes**.....**£10** (£10.50/£11)

**Data sheets**.....**£2** (£2.50/£3)

**Control software & manual (for all I/F)**.....**£2** (£2.50/£3)

## QL SPARES

Keyboard membrane ..... **no longer on sale**  
1377 PAL .....**£3** (£3.50/£4)  
Circuit diagrams .....**£3** (£3.50/£4)  
68008 cpu or 8049 IPC.....**£8** (£8.50/£9)  
8301/8302 or JM ROM or serial lead.....**£10** (£10.50/£11)  
Power supply (sea mail overseas).....**£12** (£17/£21)  
**Other components (sockets etc) also available**

Prices include postage and packing (Airmail where applicable) Prices are: UK (Europe/Rest of world). Payment by cheque drawn on bank with UK address, postal order or CASH! I can no longer accept card payments as UK only does PDQ transaction. SAE or IRC for full list and details

31 Oct 02

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